

two sides of a hastiform process. These setæ are composite, falciform, heterogomphous. The terminal joint increases in size from the lowest to the highest. The dorsal cirrus is much longer than the ventral.

For this Annelid the author forms the genus *Anoplonereis*, and names the species *A. Herrmanni*, in honour of M. Herrmann, lately director of the laboratory at Concarneau, where these researches were made. The worm occurs about once upon ten *Balanoglossi*. There is no epitocous form; sexual maturity occurs in May. The males seemed to be rather more common than the females. The skin is delicate, and ruptures easily when the animal is immersed in absolute alcohol.

As to the place to be given to *Anoplonereis* among the Nereids, the author remarks that the presence of three antennæ, the form of the superior ramus of the parapodia, the existence of simple capillary setæ, and the absence of jaws are so many characters which separate this Annelid from all the other Lycoridea. The absence of the superior ligula of the superior ramus occurs also in *Ceratocephale* and *Dendronereis*; but in these genera the setæ are all compound, and in the second the dorsal cirrus is pinnate. The form of the parapodia approximates *Anoplonereis* to the Hesionea, and especially to *Pordake*, and also to certain Syllidea, such as *Pionosyllis*, which also present simple setæ in the superior and compound falciform setæ in the inferior ramus of the parapodia. The presence of a third median antenna is also a Syllidian character met with in the Hesionea and *Polynoë*, but not in the Nereids.

The complete absence of buccal armature is remarkable in a Lycoridian. In *Ceratonereis*, indeed, there are no paragnatha at the basal part of the proboscis, and in *Leptonereis* and some allied types the paragnatha even disappear entirely; but the absolutely unarmed proboscis of *Anoplonereis* is unique in the group Lycoridea, and no doubt connected with its parasitic mode of life.

Thus *Anoplonereis* is a most curious type, uniting the Lycoridea on the one hand to the Hesionea and *Polynoë*, and on the other to the Syllidea; the last-named are to be regarded as the ancestors of the whole group of the Nereids (*sensu latiori*) as understood by Ehlers. — *Comptes Rendus*, August 21, 1882, p. 389.

Orthocynodon, an Animal related to the Rhinoceros, from the Bridger Eocene*. By WM. B. SCOTT and HENRY F. OSBORN.

Orthocynodon is the name given to designate a new genus of the rhinoceros line from the Bridger Reds of Wyoming. It was discovered by the Princeton expedition of 1878, in the Bad Lands of Bitter Creek. It carries the rhinoceros line farther back than it has been supposed to exist. The oldest representative of this line known is *Amynodon*, a genus found by Prof. Marsh† in the Uintah beds which overlie the Bridger. *Orthocynodon* was at first referred to the latter genus, until important differences in the molar dentition were discovered.

* Description from specimens in the E. M. Museum of Geology, Princeton, N. J.

† Am. Journ. Sci. ser. 3, vol. xiv. p. 251.

Generic characters. The lower canines are erect and functional, giving the name to the genus. The lower incisors are two on each side and semiprocumbent. The lower premolars, with the exception of the first, are somewhat simpler than the molars, but have the rhinoceros pattern of two inward-opening crescents directed forwards. The upper premolars have distinct posterior crescents and small postero-internal cusps. The postglenoid and posttympanic processes apparently do not unite to surround the external auditory meatus. There is a sagittal crest separating the temporal fossæ.

This genus differs from *Amynodon* in the erect canines, in the possession of a posterior crest and distinct though small postero-internal cusp on the second and third upper premolars; finally, in the fact that the premolar pattern in both jaws is like that of the molars. In *Amynodon* the canines are nearly procumbent, and the premolars are all unlike the molars. It is singular that this genus, belonging to a more recent geological formation than *Achænodon*, should have less of the typical rhinoceros structure in its molars.

Orthocynodon antiquus, gen. et sp. nov.

Dental formula, $i \frac{2-2?}{2-2}$, $c \frac{1-1}{1-1}$, $pm \frac{3-3?}{4-4}$, $m \frac{3-3}{3-3}$.

The specimens consist of the skull and lower jaw of one individual, and a portion of the skull containing the molar series of another. In each the upper canines and incisors are wanting. The lower incisors are close to the canines; they are semierect in position and placed in a quarter circle. They have slight fangs and sharp crowns, with low cingula posteriorly. The canines are almost trihedral in section, and curve upwards and slightly backwards, worn at the back of their pointed tips by the upper teeth. A diastema of 2 inches separates them from the premolars. The lower premolar-molar series differs only in size and minor details from that of a young specimen of *Rhinoceros indicus*. The first premolar has a simple crown rising to a single point and supported on two fangs. The inner face is irregularly concave, as in the rhinoceros. Each of the remaining teeth presents two forward-opening crescents of similar pattern. The third and fourth upper premolars are preserved in our specimens, and the upper molars are complete. The premolars present an external longitudinal ridge; from it arise a broad anterior and a narrow and somewhat low posterior crescent, opening backward; the postero-internal cusps are small. The molars are like those of the rhinoceros in the proportion and disposition of their crescents.

The *skull* is about 14 inches long and 5 inches deep. The occipital condyle resembles that of the Indian rhinoceros. There is a recurved *paroccipital* process having a long forward union with the posttympanic. The *posttympanic* and *postglenoid processes* do not unite as in the modern rhinoceros. In common with all the Eocene Ungulates, there is quite a high thin sagittal crest and somewhat deep temporal fossa, quite unlike the Indian rhinoceros. The skull,

in fact, does not resemble that of its modern relative. The *parietals* are narrow and compressed; the *frontals* expand into a broad well-rounded snout. We cannot ascertain from our specimens whether the nasals bore protuberances for the support of horns. It seems probable that they did not.

This animal will be fully described and figured in a later publication. The above is intended merely as a preliminary notice. *Orthocynodon* may be briefly described as an Eocene perissodactyle Ungulate with the premolar-molar dentition of a rhinoceros, and somewhat resembling *Amynodon* in the possession of canines and loss of the median incisors. It has little of the rhinocerotid character in the skull; but the resemblances in the dentition point it out as related to *Amynodon*, with which it belongs, among the group of Eocene progenitors of the Rhinocerotidæ.

Measurements.

	m.
Total length of molar series of the lower jaw192
Antero-posterior diameter of the first lower molar . .	.038
Transverse diameter of the first lower molar022
Vertical diameter of the crown of the canine040
Transverse diameter of the first upper molar035
Antero-posterior diameter of the first upper molar . .	.035
Total length of the upper molars, estimated165

Amer. Journ. Sci., Sept. 1882, p. 223.

On the Structure of the Head of Archæopteryx. By W. DAMES.

In the examination of the *Archæopteryx* in the possession of the Berlin Royal Mineralogical Museum, the results of which will be published in detail with figures, the matrix previously concealing some parts of the skeleton has been removed; and this has given a clear insight into the structure of the head.

When the specimen was obtained for the Museum, two large apertures were seen on the exposed right side of the skull; the hinder one, situated beneath the roof of the skull, was easily recognized as the orbit, especially as it contained a well-preserved bony sclerotic ring, consisting of separate plates lying one over the other, as in so many living birds. The anterior margin of this orbit is formed by a narrow bone, which is turned a little backward and extends down to the base of the skull. This bone (the lacrymal) at the same time forms the posterior boundary of a second, large, rounded triangular aperture, in the middle of which there is a crushed piece of bone separated from its natural connexions with the other parts of the skull. This aperture has been interpreted as the nasal aperture by authors, as by C. Vogt* and O. C. Marsh†. It appears, however, that the anterior part of the skull was still concealed by matrix; and it was only by very careful removal of the latter that the contours of the skull were completely exposed. This gave the important result that in front of the supposed nasal aperture there is a third aperture, placed obliquely to the longitudinal

* Rev. Scient. 2^e sér. xvii. 1879, p. 242.

† British Association Report, York Meeting, 1881.